



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

LXII. *An Account of an Observation of the Transit of Venus over the Sun, on the 6th of June 1761, at Madras; by the Rev. Mr. William Hirst, Chaplain of one of his Majesty's Ships in the East Indies: Contained in a Letter wrote by him to the Right Honourable the Earl of Macclesfield, President of the Royal Society. Dated Fort St. George, 1st July 1761.*

Read April 22,
1762.

MR. Hirst began to make observations for regulating his clock, near three weeks before the day of the transit of Venus, by taking equal altitudes first, and then by meridional passages of Spica virginis, and of the Sun; of which latter, he had a good observation on the day before the transit, and another good one the day after it; so that there can be no doubt as to the accuracy of his time.

The place of his observation was fort St. George, on the top of the governor's house, whose latitude, as determined by many observations made not long ago, with an excellent quadrant, Mr. Hirst says, is $13^{\circ} 8' N.$ and he makes it 3 minutes and 4 seconds of time eastward of Pondichery.

Mr. Hirst's clock was made by M. Gallonde of Paris, and was constructed for astronomical uses; it did not stop in winding up, and scaped dead seconds.

The

The telescope Mr. Hirst observed with, was a reflecter 2 feet long, made by Mr. Adams, of Fleet-street, London, and lately sent, as a present, by the East India company, to the Nabob Mahommed Allah Cawn, of whom Governor Pigot was so kind to borrow it, on this occasion. The governor himself, and also Mr. Call, a very ingenious gentleman, assisted in the observation; the former with a 4 feet refracter, of Mr. Dollond's new construction; the latter with a 2 feet reflecter, formerly belonging to Dr. Mead.

Some time before five, in the morning of the 6th of June, Mr. Hirst, and the rest of the gentlemen, met on the terrass of the fort-house, and were at their glasses, at the time the Sun rose, lest Venus might enter the disk before the time calculated by the astronomers. The Jesuits had calculated the beginning for Pondichery, at $6^h 57'$. The London calculations, reduced to the meridian of fort St. George, gave it at $7^h 26' 35''$ apparent time.

The morning proved favourable to the utmost of their wishes, which the more increased their impatience. At length, as Mr. Hirst was stedfastly looking at the under limb of the Sun, towards the south, where he expected the planet would enter, he plainly perceived a kind of penumbra, or dusky shade; on which he cried out, *'tis a-coming*, and begged Mr. Call to take notice of it. Two or three seconds after this, namely, at $7^h 31' 10''$ apparent time, happened the first exterior contact of Venus with the Sun, which all the three observers pronounced at the same instant, as with one voice. Mr. Hirst is apprehensive, that to be able to discern an atmosphere about a planet at so great a distance as Venus, may be regarded

garded as chimerical; yet affirms, that such nebulousity was seen by them, without presuming to assign the cause. They lost sight of this phænomenon as the planet entered the disk, nor could Mr. Hirst perceive it after the egress.

The total ingress, or first internal contact, was determined with a precision equal to that of the first external contact, at $7^h 47' 55''$ apparent time.

Mr. Hirst thinks it necessary to take notice of another odd phænomenon. At the total immersion, the planet, instead of appearing truly circular, resembled more the form of a bergamot pear, or, as Governor Pigot then expressed it, looked like a nine-pin; yet the preceding limb of Venus was extremely well defined. Mr. Hirst suspected this appearance might be owing to their telescopes not being nicely enough set to their focal lengths: accordingly, he took care to try this several times, during the transit, but found it not to be the case; for though the planet was as black as ink, and the whole body truly circular, just before the beginning of the egress, yet it was no sooner in contact with the Sun's preceding limb, than it assumed the same figure as before, at the Sun's subsequent limb; the subsequent limb of Venus keeping well defined, and truly circular.

The beginning of the egress, or second interior contact, was observed only by Mr. Hirst and Mr. Call, Mr. Pigot having retired. This phasis came on at $1^h 39' 38''$, P. M. and the total egress, by Mr. Hirst alone, at $1^h 55' 44''$, apparent time, Mr. Call unfortunately losing the solar image out of the field of his telescope.